Risks of cracking and delamination in patch repair

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Journal of Materials in Civil Engineering
Vol. 14, Issue.4, 2002

Abstract: The durability of concrete repair may be measured in terms of its resistance to cracking and to ingress by aggressive species. This paper addresses the various issues that form the nucleus of cracking resistance, including the role of material parameter indices such as free drying shrinkage and specific tensile creep. Data for these indices are presented for two new generation repair materials, and attention is drawn to the inherent anomalies existing in international specifications for shrinkage measurement. The paper concludes by defining risk factors associated with the probability of failure of a patch repair in one of three identified modes. The risk factors are computed for a patch repair using a rigid substrate idealization, and the probability of failure in cracking, delamination, or peeling modes is assessed.